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ABSTRACT

This module on the automotive fuel system is the third of six (CE 028 296-301) in the auto mechanics course of a bilingual skills training program. (A Vocabulary Development Workbook is available as CE 028 294.) The course is designed to furnish theoretical and laboratory experience. Module objectives are for students to develop trade-related Spanish/English vocabulary, to name and explain the function of the four main parts of an automotive fuel system, and to name the most common problems of a fuel system. Contents include list of module objectives; pretest; five sections on (1) parts of the fuel system, (2) fuel pump, (3) carburetor, (4) circuits of a carburetor, and (5) common problems of the fuel system; posttest; and English/Spanish vocabulary list. Each section is organized into this format: instructions, vocabulary, and concepts (statements or questions to direct reading) presented in English and Spanish; readings; and worksheets to evaluate comprehension of the trade-related reading material. Worksheets also cover these areas: vocabulary, definitions, word attack skills, spelling, writing skills, and application of terminology to the trade area. (YLB)

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I. PURPOSE

This module is to:

1. Assist students in developing trade-related vocabulary.

2. Facilitate the learning of the trade through reading information sheets, vocabulary lists and language exercises.

3. Provide student with individual check lists for individual progress.

II. INTRODUCTION

Auto Mechanics requires the student to follow a defined theoretical course of study as well as acquire practical knowledge in the respective trade. Due to the limited amount of time allowed for theory and the difficulty of the technical vocabulary found in the reading, the student often needs additional help in this area. Students in the Auto Mechanics trade are required to pass periodical tests and a final review before receiving a certificate allowing them to practice their trade. To succeed in passing this exam and to be better equipped for the job, the student must be able to function in the oral and written communication skills and utilize the technical vocabulary of their trade. This module is structured to provide for individual needs of the students so that they may progress at their pace in the academic or theoretical area. A simple coding system is utilized to facilitate student use.

III. ACTIVITIES

Because each module is geared for individualized instruction it is important to assess the individual needs of the students. A pre-test is administered to students before they begin working with a module. Instructions are given orally in Spanish and English.

Instructions, vocabulary and concepts in each module are written in Spanish and English so as to explain the purpose of each reading. There is a reading for each objective presented in the module. The reading is referred to as an information sheet. This sheet is designed to provide the student with reading material incorporating the technical vocabulary that is needed in the trade skill area. The gradation of reading is from simple to more complex. Thus the information sheet facilitates the learning process in the theoretical course of study. Each information sheet is followed by a series of diversified work sheets directly checking for comprehension of the reading material. Other items covered in these work sheets are: vocabulary, definitions, work attack skills, writing skills, spelling and application of terminology to the trade area.

Oral language development exercises directed by the instructor constantly reinforce the concepts presented. Students have an opportunity to utilize and develop the technical vocabulary needed in their trade by interaction among themselves, the instructor and tutors. The Bilingual dimension is specifically directed at concept and vocabulary development.

The students are directed to utilize supplementary materials available through the Learning Resource Center to reinforce each area as they progress in the module. Audio visuals are utilized to introduce subject matter. They are also accessible to the students to be used on an individual basis.

IV. EVALUATION

The students are evaluated by the instructors as to their progress in language and in the course content area through the pre-test, work sheets, check list and a post test. Individual student profiles and folders are kept on record to check on student progress at all times. Oral development skills are assessed individually.

Students go through the following process in utilizing the modules:

Pre-test (Students scoring 85% or below must complete the entire module. Those scoring above 85% may go on to the next module.)

Reading of instruction sheet
Information Sheet
Series of written and oral exercises
Oral evaluation
Post test (oral and written)
Recycling, if needed (Students scoring 85% or below on post-test are recycled through module in designated weak areas. See coding system.)

MODULE OUTLINE

3.0 The Automotive Fuel System

3.1 Parts of the Fuel System

3.2 The Fuel Pump

3.3 The Carburetor

3.4 Circuits of a Carburetor

3.5 Common Problems of the Fuel System

STUDENT OBJECTIVES

Upon completion of this module the students will be able to:

3.1 Name and explain the function of the four main parts of an automotive fuel system.

3.1.1 Explain how gasoline is produced.

3.1.2 Define new vocabulary.

3.2 Explain the function of the fuel pump.

3.2.1 Name the most important parts of a fuel pump.

3.2.2 Explain how the manual fuel pump works.

3.2.3 Define new vocabulary.

3.3 Explain the function of the carburetor.

3.3.1 Name and explain the three main parts of a carburetor.

3.3.2 Explain how air and gas are mixed in the venturi.

3.3.3 Define new vocabulary.

3.4 Name the six circuits of a carburetor.

3.4.1 Explain the path of each circuit.

3.4.2 Define new vocabulary.

3.5 Name the most common problems of a fuel system.

3.5.1 Explain the remedies for solving fuel system problems.

3.5.2 Define new vocabulary.

PRE-TEST
for
The Automotive Fuel System

1. What are the four main parts of a fuel system and what is the function of each one?

2. What is the essential product needed to run an engine and how is it produced?

3. What are the main parts of a fuel pump?

4. How does the fuel pump work?

5. What are the main parts of a carburetor?

6. What is the function of a carburetor?

7. Name the six circuits of a carburetor?

8. Explain how the idle and low speed circuit works?

9. What are the most common problems of a fuel pump?

10. How do you repair a leaky fuel tank?

Instructions:

In this information sheet you will read about the main parts of an automotive fuel system. You will find a vocabulary list that will help you understand the reading. At the end of the reading you will find several work sheets that will help you determine how well you comprehend the information.

Instrucciones:

En esta página de información vas a leer de las partes principales que contiene un sistema de gasolina automotriz. Hallarás una lista de vocabulario que te ayudará a comprender la lectura. Al fin del artículo hallarás unas páginas de ejercicios que sirven para ver si comprendiste la lectura.

Vocabulary

fuel - material used to produce heat or power.
gasolina - materia para producir calor o propulción.

refinery - place where materials are purified.
refinería - lugar donde se purifican las materias.

carburetor - mechanism used for mixing air and gas.
carburador - mecanismo para mesclar aire y gasolina.

fuel pump - pumps gas from tank to carburetor.
bomba de gasolina - provee gasolina al carburador.

fuel tank - to store gasoline.
cisterna de gasolina - para guardar gasolina.

fuel lines - to carry gas.
magueras de gasolina - para transportar gasolina.

Keep the following questions in mind as you read the article.
Recuerda las siguiente preguntas al leer el artículo.

1. What are the four main parts of a fuel system?
   ¿Cuáles son las cuatro partes principales del sistema de gasolina?

2. How is gasoline produced?
   ¿Cómo se produce la gasolina?

3. What is refining?
   ¿Qué es refinación?

4. What types of fuel lines are there?
   ¿Qué tipo de magueras hay?

Parts of the Fuel System

1. In the previous modules you read about the automotive ignition system and how it works. In the following readings you will read about the fuel system and how it works. The fuel system is also very important, simply because if there is no fuel or fuel system to deliver the fuel, then your engine cannot run.

2. Let's begin with the fuel or gasoline. Gasoline is made from crude oil. By means of a process called refining, crude oil is turned into motor oil, fuel oil, grease and other products. The gasoline is produced by the refining process and during this process several compounds are added to make it into good gasoline.

3. Gasoline is the essential product needed to run an engine but you must also have a system to deliver this gasoline. When the gasoline is burned in the engine it is not pure gas. It has to be mixed with air; therefore, you must also have some mechanism that will mix the gas with air. This is done by the carburetor. The carburetor will be explained in a later reading, but for now, you will read about the other parts that make up the fuel system.

4. The fuel system is composed of four (4) main parts; <u>fuel tank</u>, <u>fuel pump</u>, <u>fuel lines</u> and the <u>carburetor</u>. The fuel tank is usually located at the rear of the car and its function is to store gasoline. The fuel pump is more complicated than the tank and its purpose is to pump gasoline from the tank to the carburetor. The fuel pump is usually mounted on the engine block. The fuel lines are the ones that carry the gasoline from the tank to the fuel pump and then to the carburetor. The fuel lines are made of different materials because each line serves a different purpose. The three general types of fuel lines are made of steel, mesh and neoprene.

5. There are many other parts that are very important in the fuel system but the following readings will deal only with the most complicated. In the next information sheet you will read about the fuel pump.

Find The Answers

1. What is gasoline made from?

   A. coal
   B. crude oil
   C. air
   D. charcoal

2. The word in paragraph 1 which means gasoline is _____.

3. The words "located at the rear of the car" in paragraph 4 refer to the _____.

4. The story does not say so, but it makes you think that
   A. Gasoline alone makes the engine run.
   B. Gasoline alone does not make the engine run.
   C. The fuel system is not very important.

5. Grease is a product made from oil.

   Yes No Does not say

6. On the whole, this story is about
   A. Gasoline
   B. The fuel system
   C. Fuel oil

7. What is the fuel system composed of?
   A. Fuel tank and fuel pump, fuel lines and carburetor
   B. Gasoline, oil and grease
   C. Engine block

Answer the following questions:

1. What are some of the products made from crude oil?

2. What are the main parts of the fuel system?

3. What is the purpose of the fuel pump?

4. What are the general types of fuel lines?

5. Where is the fuel pump located?

Mark the following statements True (T) or False (F).

_____1. The carburetor mixes gas with air.

_____2. The carburetor is part of the fuel system.

_____3. The fuel tank is usually located on the engine block.

_____4. All fuel lines are made of mesh.

_____5. Gasoline that is burned in the engine is not pure gas.

_____6. Fuel pumps are usually located on the engine block.

_____7. Crude oil is turned into motor fuel through refinery.

_____8. The function of the fuel pump is to store gasoline.

_____9. The fuel tank is located at the rear of a car.

_____10. Grease and oil fuel are products produced through refinery.

Read the paragraph below. Make the necessary corrections. Corrections include: capital letters, periods and question marks.

let's begin with fuel or gasoline Gasoline is a product made from crude oil by means of a process called refinery, crude oil is turned into motor oil, fuel oil, grease and other products the gasoline is produced by the refining process and during this process several compounds are added to make it into good gasoline

Instructions:

In the following information sheet you will read about the fuel pump. There is a vocabulary list that will help you understand the information better. At the end of the reading you will also find some worksheets to check on your reading comprehension.

Instrucciones:

En las siguiente páginas vas a leer tocante la bomba de gasolina. Hallarás una lista de vocabulario que te ayudará a entender la información presentada. Al fin de las páginas de información encuentrarás unas páginas de ejercicios para ver si comprendiste lo que leiste.

Vocabulary:

fuel pump - pumps gas to carburetor.
bomba de gasolina - provee gasolina al carburador.

diaphragm - a device that regulates the amount of gas in a fuel pump.
diafragma - un mecanismo que regula la cantidad de gasolina en la bomba de gasolina.

valves - an opening in a fuel pump.
válvula - una abertura en la bomba de gasolina.

eccentric - not being centered.
excéntrico - nó está colocado en el centro.

rocker arm - a curved object which connects to the diaphragm and eccentric.
arco - un objecto encorvado que se conecta con el diafragma y el excéntrico.

Keep the following questions in mind as you read the information.
Recuerda las siguientes preguntas al leer el artículo.

1. What type of fuel pump is used most?
   ¿Qué tipo de bomba de gasolina se usa más?

2. What is the eccentric?
   ¿Qué es el excéntrico?

3. What are the two names of the valves?
   ¿Cómo se llaman las dos válvulas?

4. How does the diaphragm work?
   ¿Cómo funciona el diafragma?

The Fuel Pump

1. As you may recall from the previous reading, the function of the fuel pump is to pump the gasoline from the fuel tank to the carburetor. There are two types of fuel pumps; an electric fuel pump, and a manual fuel pump. Most manufacturers use the manual fuel pump. In this reading you will read about the manual fuel pump.

2. The most important parts of a manual fuel pump are two one way valves and a flexible diaphragm. The diaphragm works by being pulled down and pushed up. The diaphragm is located inside the fuel pump in a section called the gas chamber. By pulling the diaphragm down, a suction occurs in the gas chamber which draws the gas into the chamber through one of the one-way valves. The one-way valve that brings the gas into the chamber is called the inlet valve. The inlet valve connects the fuel pump to the gas tank.

3. On the camshaft there is a section called an eccentric. The eccentric is a round object which is off-center. That is, it is round, but it is slightly bigger on one side than on the other. The diaphragm is connected to a part called the rocker arm. The rocker arm always rests on the eccentric. When the bigger side of the eccentric meets the rocker arm, the rocker arm is pushed up. When the rocker arm is pushed up it pulls the diaphragm down and this is how the suction is produced in the gas chamber.

4. Underneath the diaphragm there is a very strong spring. As the smaller side of the eccentric touches the rocker arm it allows the spring to push the diaphragm up. As the diaphragm pushes up it pushes the gas into the other one-way valve. This other valve is called the outlet valve. The outlet valve carries the gas from the fuel pump to the carburetor.

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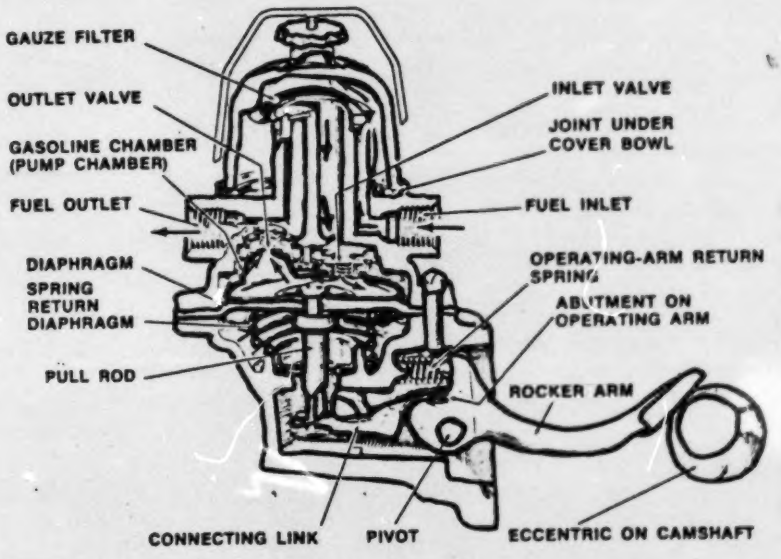
5. When the diaphragm is pulled down the outlet valve is automatically closed. When the diaphragm is pushed up the inlet valve is automatically closed. The closing is to prevent the gas from going anywhere before it is supposed to.

6. In the next information sheet you will read about the function and parts of a carburetor. See the following diagram for a better explanation of the fuel pump.



The Manual Fuel Pump

Find The Answers

1. How many types of fuel pumps are there?

   A. Two
   B. Three
   C. One
   D. Four

2. The word in paragraph 1 that mean operation is _____.

3. The words "always rests on the eccentric" in paragraph 3 refer to the

   _____ _____.

4. The story does not say so, but it makes you think that

   A. The outlet valve lets the gas into the gas chamber.
   B. The fuel pump works somewhat like a toilet bowl.
   C. The diaphragm works by being pushed down and pulled up.

5. The rocker arm always rests on the eccentric.

   Yes No Does not say

6. On the whole, this story is about

   A. Parts of the manual fuel pump and their functions
   B. The eccentric
   C. Parts in the camshaft

7. Where is the diaphragm located?

   A. Camshaft
   B. Eccentric
   C. Gas chamber

Write the following words in alphabetical order.

1. diaphragm _____
2. inlet valve _____
3. eccentric _____
4. chamber _____
5. carburetor _____
6. rocker arm _____
7. outlet valve _____
8. electric _____
9. flexible _____
10. camshaft _____

Write a short description of how the manual fuel pump works.

Fill in the blank spaces below.

1. __alv__
2. di__ph__a__m
3. __n__e__ v__l__es
4. ec__e__tr__c
5. roc__e__ a__m
6. o__tl__t va__ve
7. __ha__be__
8. m__n__al
9. s__c__i__ __
10. c__m__ __af__

Define the following words:

1. Valves _____

_____

2. Eccentric _____

_____

3. Rocker arm _____

_____

4. Diaphragm _____

_____

5. Fuel pump _____

_____

Answer the following questions:

1. What are the two types of fuel pumps?

2. Which type of fuel pump do most manufacturers use?

3. What are the two most important parts of a manual fuel pump?

4. Where is the diaphragm located?

5. What is the inlet valve?

6. What does the outlet valve do?

7. Where is the eccentric found?

8. What is the diaphragm connected to?

9. Where does the rocker arm rest?

10. What does the eccentric look like?

Instructions:

In this information sheet you will read about the carburetor. There is also a vocabulary list that will help you understand the reading better. At the end of the readings you will find worksheets that will help you see if you remember the information

Instrucciones:

En esta página de información vas a leer del carburador. Hallarás una lista de vocabulario que te ayudará a entender la información mejor. Después de la página de información encuentrarás unas páginas de ejercicios que te ayudarán a recordar la información.

Vocabulary

carburetor - mechanism used for mixing air and gas.
carburador - mecanismo para mesclar aire con gasolina.

air horn - barrel or a round tube.
tubo de aire - tubo redondo.

fuel nozzle - gas tubing.
boquilla - tubo para gasolina.

throttle valve - round disc.
válvula reguladora - disco redondo

Keep the following questions in mind as you read the information.
Recuerda las siguientes preguntas al leer la información.

1. What does a carburetor do?
   ¿Qué es la función del carburador?

2. What are the main parts of a carburetor?
   ¿Cuáles son las partes mayores de un carburador?

3. What is a throttle valve?
   ¿Qué es una válvula reguladora?

4. How is the air and gas mixed?
   ¿Cómo se mescla el aire con la gasolina?

The Carburetor

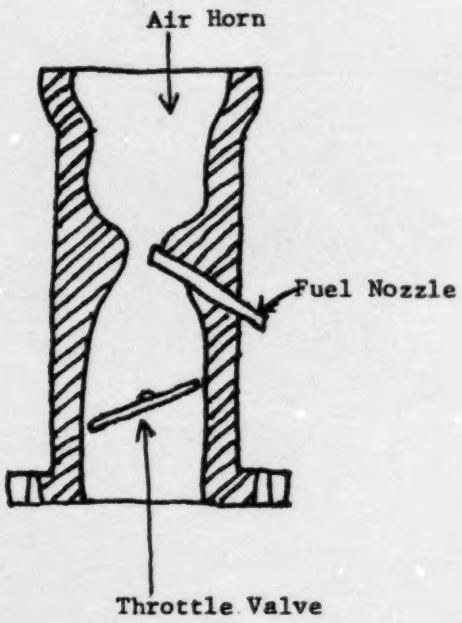
1. So far you have read about the fuel tank, the fuel line and the fuel pump. If you remember, the first reading mentioned that when the gas was burned it was not pure gas. It has to be mixed with air. If you really remember, then you know that the mixing is done by the carburetor.

2. The carburetor has three main parts. These parts are called an air horn, a fuel nozzle and a throttle valve. The air horn is a barrel or a round tube. There is also a narrow section on the air horn that is called the venturi. The fuel nozzle is a very small tube that allows the gas to travel from the float bowl to the venturi. The throttle valve is a round disc the size of the bottom of the air horn. The throttle valve is located on the bottom of the carburetor.

3. How does the carburetor mix the gas with air? When the fuel pump pumps the gas to the carburetor the gas goes in a section called the float bowl. From the float bowl the gas goes through the fuel nozzle to the venturi. Now, remember, this air passes faster through the venturi than through the air horn. As the air passes through the venturi it produces a suction that pulls the gas through the nozzle. This is where the gas and air are mixed.

4. Even though the gas and air are mixed in the venturi there must be other ways to mix the gas and air. For instance, on a cold morning the mixture has to be rich in order to start the engine. In other words it must have more gas than air. When the car is warm and you are traveling say 50 miles an hour then you need a lean mixture meaning less gas than when you are starting a cold engine.

5. For these reasons carburetors have different circuits. A <u>circuit</u> in a carburetor is the path through which gas travels to be mixed with air in order to produce the proper mixture. Below is a diagram showing the three main parts of a carburetor. Be sure to study the diagram. The next reading will explain the circuits of a carburetor.



Three Main Parts of a Carburetor

Find The Answer

1. Before the gas is burned it must be mixed with

   A. oil
   B. water
   C. air
   D. additives

2. The word in paragraph 2 which means thin is _____.

3. The words in paragraph 2 "is a round disc" refer to the words _____

   _____.

4. The story does not say so, but it makes you think that

   A. The fuel nozzle is very big.
   B. The venturi is the main mixing place for the gas and air.
   C. The venturi carries the air to the float bowl.

5. The purpose of the fuel nozzle is

   1. To mix the gas and air.
   2. To mix the additives into the air.
   3. To carry the gas from the float bowl to the venturi.

6. The purpose of the carburetor is to burn the gas.

   Yes No Does not say

7. The circuits in a carburetor

   A. Are the paths through where gas travels.
   B. Are the ones that carry the current.
   C. Are the ones that mix the gas and air.

Match the following:

_____venturi	A. A barrel or round tube.
_____circuit	B. A round disc.
_____air horn	C. Narrow section of air horn.
_____fuel nozzle	D. The path through which gas travels.
_____throttle valve	E. Small tube that allows gas to travel from float bowl to venturi.

True or False (T or F)

_____1. The air horn is a small tube that allows gas to travel from the float bowl to the venturi.

_____2. The air and gas are mixed in the venturi.

_____3. The narrow section of the air horn is called the venturi.

_____4. The round disc at the bottom of the air horn is called the throttle valve.

_____5. Air passes slower through the venturi than through the air horn.

_____6. When an engine is cold the mixture should be lean.

_____7. When the engine is warm the mixture should be lean.

_____8. A rich mixture means more gas than air.

_____9. A lean mixture means more gas than air.

_____10. A carburetor circuit is the path of an electric current.

Answer the following:

1. How does a carburetor mix the air and gas?

2. What is an air horn?

3. What is a venturi?

4. How does the gas get into the float bowl?

5. What happens as the air passes through the venturi?

6. What are the two types of air fuel mixtures needed for cold and warm engines?

7. What is a carburetor circuit?

Instructions:

In this readings you will read about the different circuits of a carburetor. There is a vocabulary list that will help you understand the information better. At the end of the information sheet you will find some worksheets to help you remember what you read.

Instrucciones:

En estas páginas de información vas a leer de los diferentes circuitos del carburador. Hallarás una lista de vocabulario que te ayudará a entender la información mejor. Al fin encuentrarás unas páginas de ejercicios que te ayudarán a recordar la información.

Vocabulary

circuit - path of gasoline in a carburetor.
circuito - por donde pasa la gasolina en un carburador.

float - carburetor compartment where gas is stored.
flotador - lugar en el carburador donde se guarda la gasolina.

choke - stops air from entering the air horn.
obturador - no permite que pase el aire al tubo de aire.

Keep the following questions in mind as you read the information.
Recuerda las siguientes preguntas al leer la información.

1. How many circuits does a carburetor have?
   ¿Cuántos circuitos tiene un carburador?

2. What are the circuits for?
   ¿Para qué son los circuitos?

3. How do the circuits work?
   ¿Cómo funcionan los circuitos?

Circuits of a Carburetor

1. As you may remember, for different speed or motor temperatures your engine needs different mixtures of air and gas. The different circuits of the carburetor provide these mixtures. There are six circuits in a carburetor. These circuits are called float, idle and low speed, high speed part load, high speed full-power, accelerator-pump and choke.

2. The float circuit is responsible for keeping a certain amount of gasoline in the float bowl. The gasoline passes from the float bowl through the fuel nozzle and is mixed with air in the venturi. When the gas level in the float bowl is high, the gas would continue to run to the venturi. This would be a very rich mixture causing fuel waste and also cause the engine to run poorly or stall. If the level of gas in the float bowl was low, then the mixture would be too lean. The suction in the venturi would not be able to suck enough gas. This would also cause the engine to run poorly or stall.

3. The idle and low speed circuit is responsible for supplying the mixture when the throttle valve is closed. If you remember when the throttle valve is closed no air is allowed through the air horn. How does this circuit work? Well, first when no air is allowed to pass, a strong suction occurs in the intake manifold. This suction is so strong that the fuel flows from the float bowl to the fuel nozzle. Also, underneath the throttle valve is a small opening called an idle port. This idle port is what allows the mixture into the engine. Near the top on the air horn there is also another opening. This is where the air enters. When the intake manifold is sucking the gas through this circuit the air mixes with the gas and travels to the idle port and on to the engine.

Before the mixture reaches the idle port it is mixed with more air through another opening called the slow speed port on top of the throttle valve. The idle port also has an idle adjustment screw. This screw can be turned in or out. When the screw is out the mixture is rich and when it is in, the mixture is lean.

4. When the engine is operating at low speed the throttle valve is slightly open. This allows only a small amount of air to pass. When the slow speed port is working the fuel is fed through both the slow speed port and the idle port.

5. The high speed part load circuit is responsible when the throttle valve is almost completely open. What happens is that as more air is allowed to pass the idle port and low speed port stop working because as the air passes through the venturi a suction occurs which helps the fuel to flow through the fuel nozzle and mix with air.

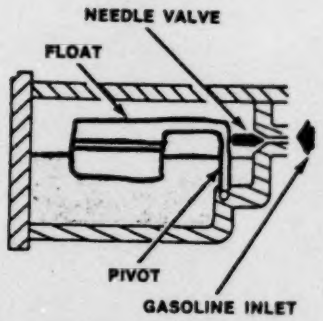
6. The high speed-full power circuit works when the throttle valve is completely open. There is an added part in this circuit called the metering rod. This rod is connected to the throttle linkage so that when the throttle is wide open, it automatically opens the metering rod. When the metering rod is pulled up more fuel is allowed to pass thus allowing it to mix properly.

7. The accelerator pump circuit is responsible for supplying a rich mixture when a sudden burst of power is needed. This circuit uses what is called a pump. The pump is pushed down when the throttle valve is wide open. As the pump pushes down it pumps a small amount of gas that mixes with the mixture making it a richer mixture.

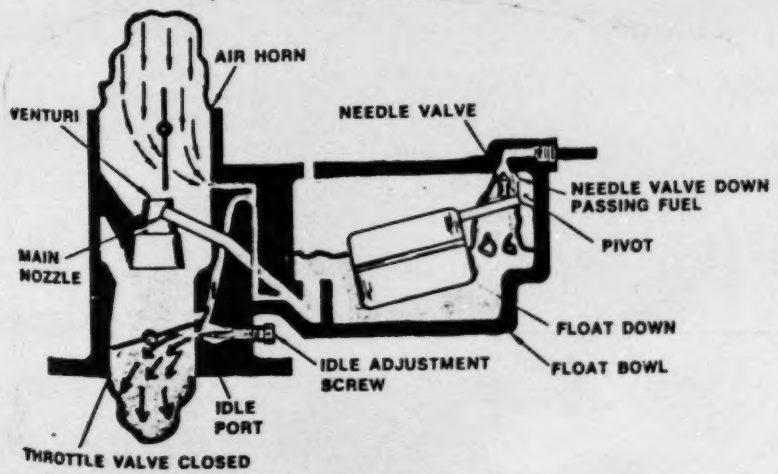
8. The choke circuit is used when cranking to start. The choke is a disc located on the top of the air horn. When the choke is closed little or no air is allowed to pass. This causes a suction in the intake manifold that forces the

gas to flow through the fuel nozzle and on to the intake manifold. This is a very rich mixture.

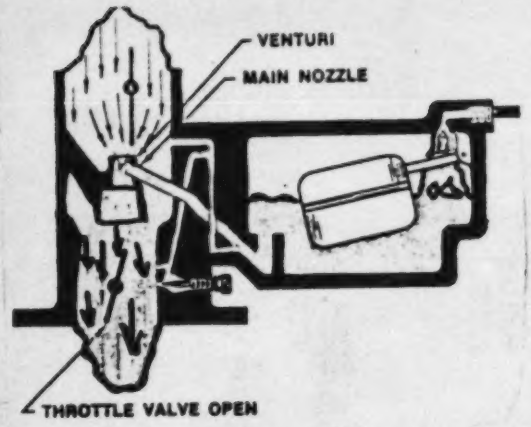
9. Below are some diagrams to help you understand the readings better. The next reading will explain some of the problems encountered in the fuel system. Be sure to study the diagrams.



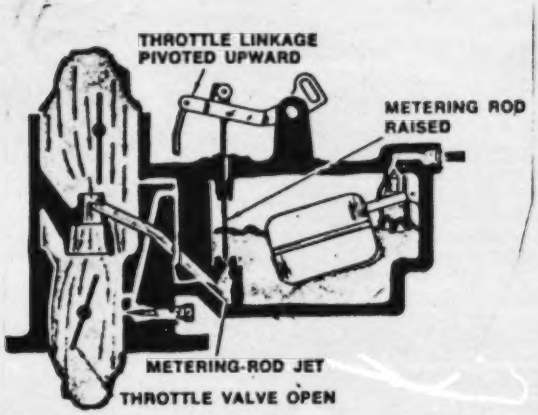
Float Circuit



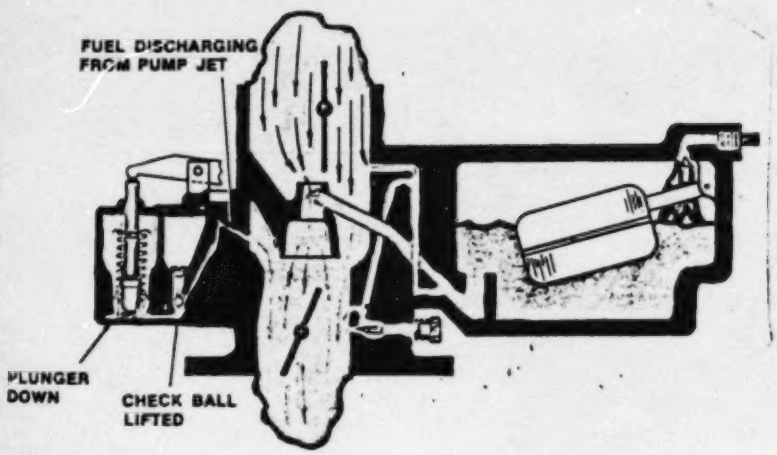
Idle and Low Speed Circuit



High Speed Port Load Circuit



High Speed Full Power Circuit



Accelerator Pump Circuit

Choke Circuit

Find The Answer

1. How many circuits are there in an carburetor.

   A. Three
   B. Two
   C. Four
   D. Six

2. The word in paragraph 1 which means "not the same" is _____.

3. The words "in the venturi" in paragraph 2 refer to _____.

4. The story does not say so, but it makes you think that

   A. There are 4 main circuits.
   B. The most important circuit is the air horn.
   C. The carburetor is a very complicated mechanism.

5. The idle port allows the mixture into the engine.

   Yes No Does not say

6. On the whole this story is about

   A. Fuel pumps
   B. Carburetor circuits
   C. Air fuel mixtures

7. The float circuit is responsible for

   A. Mixing air and gas.
   B. Sucking the gas into the venturi.
   C. Keeping gasoline in the float bowl.

Match the following:

_____Idle/low speed circuit	A. Is responsible for supplying a rich mixture when a sudden burst is needed.
_____Float circuit	B. Is responsible when the throttle valve is almost completely open.
_____High speed part load	C. Is responsible for supplying the mixture when the throttle valve is closed.
_____High speed full power	D. Is responsible for keeping a certain amount of gasoline in the float bowl.
_____Choke circuit	E. Is responsible when the throttle valve is completely open.
_____Accelerator pump circuit	F. Is used when cranking to start

Correct the misspelled words.

The idel post also has an idle ajusment screu. This scieu can be terned in or aut. When the screu is out the mixtere is rich and when it is in the mixtere is clean.

Answer the following: 3.4

1. Explain a float circuit.

2. Explain the idle-low speed circuit.

3. Explain the high speed part load circuit.

4. Explain the high speed-full power circuit.

5. Explain the accelerator pump circuit.

6. Explain the choke circuit.

Instructions:

In the following information sheet you will read about the most common problems of a fuel system. At the end you will find some worksheets that will help you remember this information. There is also a vocabulary list.

Instrucciones:

En la siguiente página de información vas a leer de los problemas más comunes del sistema de gasolina. Al fin encuentrarás unos ejercicios que te ayudarán a recordar esta información. También hay una lista de vocabulario.

Vocabulary:

insufficient - not enough.
insuficiente - no hay suficiente.

fumes - gas vapor.
vapores - vapor de gasolina.

ignite - start on fire.
encender - hacer fuego.

defective - not working properly.
defecto - no trabaja bien.

clog - filled up with foreign materials.
obstáculo - lleno de materia extranjera.

Remember the following questions as you read the information sheet.
Recuerda las siguiente preguntas al leer la página de información.

1. What are the most common problems of a fuel tank?
   ¿Cuáles son los problemas más comunes del sistema de gasolina?

2. What are the problems of a fuel pump?
   ¿Cuáles son los problemas de una bomba de gasolina?

3. What are the problems of the carburetor?
   ¿Cuáles son los problemas del carburador?

Common Problems of the Fuel System

1. By now you should have a better understanding of the fuel system. If you have any questions be sure to ask the instructor or tutor. As you probably know, regardless of how much care you put into your car, there will be problems. This reading will cover some of the most common problems that are related to the main parts of the fuel system.

2. The fuel tank is actually a very reliable part but it can cause problems. There are three main problems caused by the fuel tank. The problems are leaks, dirt and rusting out. When dirt enters the tank it can clog up the lines thus preventing fuel from passing. The tank should be removed and drained. When a tank becomes rusty and then leaks, it can become a very dangerous situation. Any spark could ignite the leaking gas. The leaks can be sealed with either solder or fiber glass. The area of the leak must be cleaned. Do not use a machine to clean the area, for this may ignite the fumes still in the tank and cause an explosion.

3. The fuel pump is a part that can cause problems. The two most common problems of the fuel pump are insufficient pressure and leaks. The problem of insufficient pressure will cause a lack of fuel in the carburetor. This problem is checked by making a pressure test. The normal pressure is usually from 3 to 8 pounds. If the pump exceeds the specified pressure or if it does not have sufficient pressure then it should be replaced. Leaks in the pump are usually caused by loose connections or a worn out diaphragm. Be sure to check for this.

4. The problems of the fuel lines are those of loose connections or leaks due to wear. The remedies to these problems are to tighten or replace the lines.

5. The problems of the carburetor are most often not problems of the carburetor itself but of parts connected to it. One of the most common problem is leaks.

There are fuel and air leaks. These problems are due to loose or defective parts on the carburetor. There are, of course, many other problems which are too many to be mentioned in this reading. The most important thing to remember is how the various parts are supposed to function. Knowing this makes problem-solving easier.

Find The Answer

1. What are the three most common problems with fuel tanks?

   A. Leakage, rusting out and damage on the road.
   B. Leakage, rusting out and dirt.
   C. Damage on the road, broken filter neck, rusting out.

2. What is needed to repair holes in fuel tanks?

   A. Solder
   B. Fiber glass
   C. Both of the above.

3. When preparing a fuel tank for a fiberglass job, do not use.

   A. Cloth
   B. Wire brush
   C. Electric drill

4. Why should a gasoline leak receive immediate attention?

   A. It is a fire hazard.
   B. Reduces mileage.
   C. Affects engine performance.

5. The fuel pump pressure on most vehicles ranges from

   A. 1-2 pounds.
   B. 2-3 pounds.
   C. 3-8 pounds.

6. If a fuel pump has excessive or insufficient pressure, what should you do?

   A. Repair it.
   B. Replace it.
   C. Leave it alone.

7. What are the two common leaks on a carburetor?

   1. air and fuel.
   2. line and screw.

Answer the following:

1. What are the three most common problems of a fuel tank?

2. What are the two most common problems of a fuel pump and what should be done about them?

3. What are the problems and remedies of fuel lines?

4. What is the most common problem of a carburetor?

Fill in the blanks.

By now you should _____a better understanding _____the fuel system. If there _____any questions be sure to ask. As you probably know, regardless _____how much care you _____into your car _____ will be problems. This reading _____cover some of the most common problems that _____related to the main parts _____the fuel system.

Fill in the blanks to make words and define each word.

rel__a__le _____

_____

r__st_____

_____

p__mp _____

_____

d__a__hr__gm _____

_____

s__ff__ci__nt _____

_____

ca__b__ret__r _____

_____

d__fe__t__ve _____

_____

s__pp__se _____

_____

pr__ss__re _____

_____

__gn__te _____

_____

POST-TEST

for

The Automotive Fuel System

1. What are the four main parts of a fuel system and what is the function of each one?

2. Name the six circuits of a carburetor.

3. What are the main parts of a fuel pump?

4. What are the most common problems of a fuel pump?

5. What are the main parts of a carburetor?

6. How do you repair a leaky fuel tank?

7. What is the essential product needed to run an engine and how is it produced?

8. How does the fuel pump work?

9. Explain how the idle and low speed circuit works?

10. What is the function of a carburetor?

Vocabulary	Vocabulario
air horn	campana de aire
accelerator	acelerador
care	cuidar
clog	impedimento
crude oil	petróleo crudo
compound	composición
composed	compuesto
choke	ahogador
crank	poner en marcha
camshaft	árbol de levas
defective	defectivo
diaphragm	diafragma
drained	escurrido
disc	disco
eccentric	eccentrico
explo ion	explosíon
essential	esencial
engine block	bloque de motor
fiberglass	vidrio fibroso
fumes	vapor
fuel tank	tanque de combustible
fuel pump	bomba de combustible
flexible	flexible
grease	grasa
instructor	instructor
ignite	encender

Vocabulary	Vocabulario
intake manifold	múltiple de admisión
leak	escape
lean mixture	mezcla pobre
machine	maquina
mention	mencionar
mount	montar
mesh	engranar
mix	mezclar
needle	aguja
narrow	angosto
neoprene	neópreno
pressure test	prueba de presión
product	producto
push	empujar
provide	proveer
reliable	seguro
remedy	remediar
refining process	proceso de refinamiento
rocker arm	balancín
rust	moho
stall	pararse
speed	velocidad
spring	resorte
suction	succión
sudden	repentino
opening	abertura
object	objeto

Vocabulary	Vocabulario
throttle	acelerador
temperature	temperatura
venturi	venturi
waste	desperdicio